COST *and* MANAGEMENT

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ACCOUNTING AND ECONOMIC BUSINESS PROFIT
By Hermann C. Miller 298

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"Intermediate Accounting"
"C.P.A. Problems"
"Solutions to C.P.A. Problems"

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COST ACCOUNTING IN A DIVERSIFIED FOOD INDUSTRY
By J. G. McKnight 313

James Grant McKnight is Comptroller and Secretary of Shirriff's Limited and submitted this article in qualifying for his degree of Registered Industrial Accountant. Mr. McKnight is well known to most members of the Ontario Society since he was active in the formation of the first Toronto Student Section and has had the interests of the Society at heart ever since. He is a member of the Controllers Institute of America and The Toronto Board of Trade. His background of experience includes varied Executive positions with several large Canadian companies.

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SOCIETY NOTES

CHAPTERS ORGANIZED IN NEW BRUNSWICK

In accordance with the program established at its first general meeting held last June, the Society of Industrial and Cost Accountants of New Brunswick organized Chapters in St. John and Moncton.

The first meeting of the Moncton Chapter was held on September 22nd, with 42 prospective members present. The secretary-manager of the Canadian Society, Mr. J. Nelson Allan, presented an outline of the aims and objects of the Society, its history and activities.

The Chairman announced that the program for subsequent meetings had been completed. It included a most interesting list of topics and capable speakers, and there is every indication that the chapter is now embarked upon a very active season.

A similar meeting was held in St. John, on October 5th, with an attendance of 35. Here, too, a well-planned program was announced, and the unmistakable evidence of enthusiasm gave every indication the chapter was going to receive excellent support.

The influence of the society continues to be extended, and with each new chapter, its strength is correspondingly increased. With the two new chapters in New Brunswick, the Society now has 28 chapters. We welcome them into our Society, and wish them every success for their future development.

EVENING LECTURE CLASSES INAUGURATED IN THREE CENTRES

It is very pleasing to announce that the Society's courses can be taken through the medium of evening lecture classes in three additional centres. They are as follows:—

1. Windsor, Ontario—Classes are conducted by the University of Western Ontario, at Assumption College.
2. Toronto, Ontario—Classes conducted by University of Toronto Extension at University College.

3. Halifax, N.S.—Classes conducted by Dalhousie University.

In each case, classes are provided for the first-year students only.

The full co-operation which the Society has received from the many universities has contributed immeasurably to the extension of its educational program.

There is profound evidence of this close co-operation in the fact that evening lecture classes in the Society's courses are now being conducted by universities in 15 centres across Canada.

CO-ORDINATING EXECUTIVE COMMITTEE MEETS

On the recommendation of the Annual Meeting held last June, the Board of Directors passed a resolution creating a Co-Ordinating Executive Committee. The members of this committee shall be the officers of the Society and two directors representing the Councils of each of the Affiliated Provincial Societies. The resolution further provided that the function of this committee shall be "to formulate the policies of the Society and to deal with such matters as in a general way relate to the operations of the affiliated Provincial Societies and their relationship to this Society and to each other."

The wisdom of establishing such a committee is quite apparent, and is but another major step in fitting the organizational structure of the Society to meet its increasingly greater responsibilities. Such a representative group will be able to establish over-all policies which will maintain a unity of purpose and at the same time have full regard for circumstances peculiar to the individual provinces.

The first meeting of the Committee will be held in Winnipeg on October 27th and 28th. Seven of the Provincial Societies will be represented to deal with many items of business important to the future of the Society.

New Members

EASTERN TOWNSHIPS CHAPTER

L. Couture, Julius Kayer & Co. Ltd., Sherbrooke

FORT WILLIAM - PORT ARTHUR CHAPTER

Finn Bergestad, Oscar Styffe Limited, Port Arthur

HALIFAX CHAPTER

Kenneth M. Carter, N.P.F. Office, H.M.C.S. "Shearwater", Dartmouth

HAMILTON CHAPTER

Harry Comishen, International Harvester Co. of Canada, Ltd.
J. Irving Whitford, Gurney Scale Co. Ltd.
John Potter, Mountain Sanatorium
J. G. Davidson, The Steel Co. of Canada Ltd.
David Bedford, 1 Tragina Avenue North
J. R. Gartley, Bank of Toronto, Market Branch
R. W. Pilgrim, The Steel Co. of Canada Ltd.
J. E. Schott, The Hoover Co. Ltd.
W. D. Best, Otis Elevator Co. Ltd.
R. L. Fraser, Buntin-Gillies & Co. Limited
E. W. Parker, Cosmos Imperial Mills Ltd.
R. J. Johnson, The Steel Co. of Canada Ltd.
O. R. Hicks, N. Slater Co. Ltd.
R. Eleoff, The Steel Co. of Canada Ltd.
D. B. Booker, The Steel Co. of Canada Ltd.
M. W. Hewitt, The Steel Co. of Canada Ltd.
John Campbell, The Steel Co. of Canada Ltd.
W. E. Zarycki, International Harvester Co. of Canada, Ltd.
A. H. McKenzie, Mammy's Bread, Ltd.
H. R. Quinn, Glenlea Dairy
H. R. Lishman, Hamilton Hydro Electric System
K. Sim, The Hoover Co. Ltd.
D. L. Harper, Ditto of Canada
T. R. Bird, Brown, Boggs Foundry & Machine Co. Ltd.
H. E. Geiss, Otis Elevator Co. Ltd.
J. W. Rymal, The Hoover Co. Ltd.
D. Alden, Aerovox Canada Ltd.
R. Campbell, Procter & Gamble Co. of Canada Ltd.
H. S. Lawes, John Dickinson & Co. (Canada) Ltd.
J. G. Clow, Firestone Tire & Rubber Co. Ltd.
R. T. Barlow, Procter & Gamble Co. of Canada Ltd.
Elizabeth A. Main, The Steel Co. of Canada Ltd.
F. A. Hargreave, Peller Brewing Co. Ltd.
D. A. Stewart, 96 Locke St. S.

H. D. Turner-Lynch, The Steel Co. of Canada Ltd.
J. E. Greer, The Steel Co. of Canada Ltd.

J. Kopak, Aerovox Canada Limited
D. R. Dove, The Hoover Co. Ltd.
J. N. Fenton, C.A., M. I. Long & Co.
D. R. Manson, Jervis B. Webb Co.
D. G. Ulens, Canadian Industries Ltd.
S. Taylor, C.P.A., 54 James St. N.
S. S. Suenaga, James Jeweller
Anne Marie Pollice, The Fischer Hotel
M. P. Muldoon, American Can Co. Ltd.
J. Patterson, Wm. R. Barnes Co. Ltd.
W. J. McMullen, Van Wilson Equipment Co.
S. L. McAlpine, John E. Riddell & Son, Ltd.
W. W. Norton, International Harvester Co. of Canada Ltd.
W. W. Robertson, Otis Elevator Co. Ltd.
M. Ruth Ito, John E. Riddell & Son, Ltd.
C. F. McKay, Room 44, Y.M.C.A.
Mrs. Jean S. Best, R. B. Travers Company
E. J. Martin, The Steel Co. of Canada Ltd.
E. Sudikas, St. Joseph's Hospital
W. W. Milne, The Steel Co. of Canada Ltd.
W. Locke, The Steel Co. of Canada Ltd.
R. B. Halford, Tuckett Tobacco Co. Ltd.
R. E. Gould, Coca-Cola Ltd.
G. M. Hazzard, The Steel Co. of Canada Ltd.
E. D. Tait, Tuckett Tobacco Co. Ltd.
E. D. James, Canadian Westinghouse Co. Ltd.
Eileen M. North, Department of National Revenue

KINGSTON CHAPTER

H. E. Crawford, Gould Storage Battery Limited

KITCHENER CHAPTER

G. B. Wingham, Canadian Office and School Furniture Ltd., Preston
W. G. Zinn, Kralinator Limited, Preston
A. J. Buchanan, Stamped and Enamelled Ware Ltd., Hespeler
W. K. Fleet, Beatty Bros. Ltd., Fergus

MONTREAL CHAPTER

E. A. Pike, Sherwin-Williams of Canada Ltd.
G. D. Rediker, Creak, Cushing & Hodgson, C.A.'s
Rene Desroches, St. Lawrence Furniture Store Ltd.
J. C. Ronson, The Steel Co. of Canada Ltd.
C. J. Peacock, Dennison Mfg. Co., Drummondville
A. Timon, Shawinigan Water & Power Co. Ltd.
W. Hamilton, Dominion Oilcloth & Linoleum Co. Ltd.
J. F. Mashall, C.A., P. S. Ross & Sons
A. W. Don, Jr., Monsanto (Canada) Ltd.
W. R. McClelland, Shawinigan Water & Power Co., Valleyfield
J. C. Wynn, Liquid Carbonic Canadian Corp.
G. LaBrish, Aluminum Co. of Canada Ltd., Arvida

NEW WESTMINSTER CHAPTER

D. S. Birtch, Canada Western Cordage Co. Ltd.

NIAGARA CHAPTER

K. Miller, Walker Motor Sales, Dunnville

J. R. Fowler, Atlas Steels Limited, Welland

OTTAWA CHAPTER

Mrs. Mary Irene Stewart, Inter-Provincial Utilities Limited

ST. MAURICE VALLEY CHAPTER

R. H. Martinson, The Northern Veneer & Plywood Co. Ltd., LaTuque

TORONTO CHAPTER

Alex Bercovici, Dominion Paper Box Co. Ltd.

L. B. Pierce, MacLean-Hunter Publishing Co. Ltd., Lansing

R. R. Mackasey, Dunlop Tire & Rubber Co. Ltd.

J. R. Taylor, Coca-Cola Ltd.

R. M. Pidgeon, Imperial Varnish & Color Co.

VANCOUVER CHAPTER

D. F. Law, Canadian Fishing Co. Ltd.

C. Lamb, Columbia Stores Ltd.

Isobel M. Fleming, Gordon Brothers

Audrey G. Barthau, Nelson & Company

D. T. Bell, Dept. of National Revenue

J. A. Ploos Van Amstel, 1450 Barclay St.

E. B. Petersen, Vancouver Barge Transportation Ltd.

R. M. Hunter, B.C. Pulp & Paper Co. Ltd.

F. I. Taggart, Goodrich Rubber Co. Ltd.

M. A. MacKay, Success Business College

VICTORIA CHAPTER

H. S. Rounding, Douglas Tire

WINDSOR CHAPTER

P. S. Foulds, Hiram Walker & Sons Limited, Walkerville

K. E. Pye, Canadian Industries Ltd.

WINNIPEG CHAPTER

C. F. Henne, Fox Theatre

Chapter Notes

SASKATOON CHAPTER

The first meeting of the year was held at the King George Hotel, on September 25th. This was a dinner meeting with 18 members and students present.

The various activities of the Chapter were discussed in some detail and specific plans were made for the extension of the general membership and student registration.

PETERBOROUGH CHAPTER

Mr. George Cheatle, Assistant Secretary-Treasurer of Canadian Nashua Paper Co. Limited, Peterborough, Ontario, addressed the Peterborough

Chapter of the Ontario Society of Industrial and Cost Acocuntants at its inaugural meeting held at the Empress Hotel, on Tuesday, September 26th, 1950.

Mr. Cheatle gave a very interesting description of the system of general and cost accounts as used by his company. He used a new approach to the explanation of Cost Accounting procedures inasmuch as he began his talk at the results obtained and explained each step in reverse back to the original books of entry. This manner of presenting the paper seemed to allow his audience to absorb the facts and system much more readily than would have been possible by using the usual approach of starting with books of original entry and working through to the finished statements, in that it was not necessary for his audience to remember a mass of detail before getting to the meat of the problem.

Mr. Cheatle was introduced by Mr. Adamson, of the C.G.E., and the members expressed their appreciation of the talk through the medium of Mr. Blake Bell, of the Quaker Oats Company.

HAMILTON CHAPTER

The first meeting of the 1950-'51 season of the Hamilton Chapter of thethe Society of Industrial and Cost Accountants of Ontario was held September 21, in the Ten O'Clock Club of the Royal Connaught Hotel. The meeting was well attended, among whom were a number of visitors. These were welcomed by the Chairman, Mr. J. Bracewell.

Mr. A. E. Elliott, Vice-President in Charge of Sales, of the International Harvester Company, on behalf of his Company, made a presentation to Mr. K. W. Ball, for the highest standing in Advanced Cost Accounting.

Mr. George Moller, C.A., on behalf of the Hamilton Chapter, made a presentation to Mr. E. M. B. Wood, for the highest standing in Fundamentals of Cost Accounting.

Mr. Walter Furneaux, Managing Director of Aerovox Canada, introduced the speaker, Mr. Ray H. Bissell, F.C.I.C., President of the Vi-Tone Products Ltd., who spoke on "Organization of a New Industrial Concern". Mr. Bissell took his listeners through the necessary steps, starting from raising the capital; making a survey of the sales prospects; of the type of product decided on; and location of raw materials, ets. Then followed the purchase of the proper machinery; selection of employees, etc. When the product was finally produced, tests and improvement were always necessary. The final aim, of course, was to end up with a profit.

The speaker was thanked on behalf of this audience, by Mr. Lloyd Simenton, R.I.A.

EASTERN TOWNSHIPS CHAPTER

The Eastern Townships Chapter of the Society of Industrial and Cost Accountants of Canada, held their first meeting of the 1950-'51 season, on Thursday, September 21st, 1950. This year the opening meeting was commenced with a guided tour through the Canadian Johns-Manville Company Limited, Factory, Mill and Surface Mine, at Asbestos, Quebec.

The group met at the Iroquois Club and were greeted by Mr. Paul Felteau, of Canadian Johns-Manville Industrial Relations Department, who was in charge of the tour. Excellent arrangements had been made for conducting the party in four groups.

Much interest was shown in the many products made in the factory. The open pit workings, which soon will be almost entirely abandoned and replaced by underground mining, were viewed from the look-out tower. The underground mine Superintendent, Mr. J. Eby, then gave an explanation of how the mining was being done underground, and afterwards answered any questions put forth by the group.

The group returned to the Iroquois Club for the dinner and meeting, which was under the chairmanship of Mr. R. E. Blake.

The guest speaker was Mr. K. V. Lindell, Plant Manager of Canadian Johns-Manville, whose subject was "Underground Block Mining". The speaker was thanked by Mr. H. Moffatt, and the meeting was adjourned.

VICTORIA CHAPTER

The Victoria Chapter of Industrial and Cost Accountants held their opening meeting of the 1950 - '51 season on Tuesday night, September 26th, at the Empress Hotel. Special guests were Mr. Norman Terry, Dominion President of the Society, and well-known Vancouver business man, Mr. Clifton H. Davis, B.C. Provincial Manager, and Professor R. T. Wallace, Director of Evening Courses, at Victoria College.

Mr. Norman Terry gave a short address on the Society, entitled "Past, Present and Future", and during the course of the evening, presented the Fernie Trophy to the Victoria Chapter for having the largest percentage gain in membership of any Chapter in Canada during the past year. Mr. John K. Feilden, of the B.C. Power Commission Accounting Staff, was announced as having wo nthe Bronze Medal of The British Columbia Society, for making the highest marks in his section in B.C.

Pans for the coming year were discussed, and questions on the lecture courses at Victoria College, in Accounting I, II and Business Mathematics, leading to Registered Industrial Accountant qualification, were answered.

VANCOUVER CHAPTER

The first dinner meeting of the season was held in the Georgia Hotel, Vancouver, B.C., on Thursday, September 14th and was exceedingly well attended b ysome 75 members. The guest speaker was Professor E. D. MacPhee, who is the new director of the School of Commerce at the University of British Columbia, and he gave a very interesting talk on "Education and Business". The meeting was honored with the presence of our National President, Mr. Norman Terry, and during the evening the Abramsen Scholarship and the Silver and Gold Medal awards were presented to the winners.

The Chapter dinner meetings for this season are to be held on the second Thrusday of September, October, November, January, February, March and April, and the annual meeting will be held in May 1951, at a date to be set later.

C & M ROUND-UP

By N. R. BARFOOT, R.I.A.

COMBINES INVESTIGATION ACT

At the session of parliament just concluded the Minister of Justice announced the appointment of a Committee for the purpose of studying the Combines Investigation Act.

This Committee is to study, in the light of present day conditions, the purposes and methods of the Combines Investigation Act and the legislation and procedures of other countries in so far as they appear likely to afford assistance and to recommend changes to the Act in order to make it a more effective instrument for the encouraging and safe-guarding of our free economy.

It has been suggested to the Committee that they receive as soon as possible from organizations, firms and individuals whatever views they may wish to express upon matters within its terms of reference.

This means that the new Committee will be able to receive the help and advice of industry, and professional associations which, as a part of their general activities, study the country's economy. It is indeed a happy situation when the legislative and regulatory bodies ask the opinions of those who are most intimately concerned with the country's economy and who in turn will be affected by any changes that may be made in the Combines Act, as a result of the deliberations of the investigating Committee.

CANADIAN RESOURCES

It has often been said that the last half of the Twentieth Cenutry would belong to Canada. Here are a few facts to remember in support of this statement:—One billion tons of iron ore in Labrador averaging 58% pure iron as against the average of 52% for the famous Mesabi Range.

Two hundred million tons of titanium ore in Quebec, the largest deposit on record of this wonder mineral.

One and one-half million barrels of proven petroleum reserves in Alberta—geological estimates of total reserves range from 50 to 20 billion barrels.

Five billion cubic feet of proven natural gas reserves also in Alberta, with estimates upwards of 30 billions in actual reserve.

One-seventh of the world's proven coal supply in Canada, mostly in Alberta.

World's largest deposit of uranium ore in the Great Slave Lake region.

DIVIDENDS

Dividend payments by Canadian corporations for the first eight months of this year amounted to $277,405,604.00. This compares to $268,880,051.00 for a similar period in 1949 and $246,975,798.00 in 1948.

A major portion of the increases are shown in the utilities and mines, which were substantially greater than last year.

ELECTRONIC ACCOUNTING

The place of mechanical equipment and office machines is very important in industry and without them, there is no doubt that the average industrial concern would bog down. It would be impossible for men and women with pen or pencil or abacus to compute the mass of data industries' executives must have at their fingertips, without this data being hopelessly out of date before it was computed. Electronics has now come to the aid of business management.

It has some similarity to punched card accounting with the exception that the machines use reels of magnetic tape instead of punched cards. The raw source data is converted into a pattern of dots on the tape by means of a transcription machine, which is used similarly to a typewriter keyboard.

One reel of this magnetic tape carries the equivalent information of 11,000 90-column punched cards. It is completely permanent and yet the tape may be erased and reused for new information.

It is very compact. A 20-drawer punched card filing package holds 75,000 cards and stands about 5 feet high. Seven small reels of magnetic tape can contain the same information.

The machine is capable of tremendous speeds. The computation of addition or subtraction is 1900 digits per second or 6,840,000 per hour; multiplication 465 per second or 1,674,000 per hour; division 255 per second or 918,000 per hour.

WARM WAR AND THE ACCOUNTING DEPARTMENT

It remains to be seen whether or not the present Korean conflict develops into a major war. However, Government spending for munitions and army supplies will certainly increase. With the advent of federal contracts for war goods will come the financial aspects of the same.

Do you remember M. & S. Form 433, the cost of performing a contract or sub-contract?

In the early years of World War II many firms, when subjected to treasury cost audit, were found to have inadequate cost finding systems.

This particular defect is undoubtedly not as widespread now. However, costing memorandum M. & S. Form 433 or a very similar manual will no doubt be used in the auditing for Government contracts.

M. & S. Form 433 checked, of course, on the fundamental paper work of any accounting system, good stores control, proper payroll records for control of direct labor, and the proper segregation of overhead costs.

It did not insist on any particular type of cost system and did not imply that job costs were obligatory.

Instructions to the field auditor were to satisfy himself that the material, stores and payroll accounting systems, particularly the distribution of charges to the contract were such as to prevent the loading of production costs with amounts properly chargeable to other production.

Current Literature Digest

MODERN BREWERY ACCOUNTING—by Harry Dugdale, A.A.C.C.A., A.C.W.A., A.M.I.I.A., in the Accountans Journal (England), June 1950.

This articles describes accounting as practised in the Brewery industry in England. The author expresses his view "that the accounting structure of this specific industry is a most interesting and varied one."

An introduction of some of the organizational history of the industry is presented—how present companies evolved from family to public ownership; the development of the "tied" house idea, wherein a brewery owns a public house, which in turn is rented to a tenant whose purchases are solely or largely made from the landlord company.

Reference is made to the two main processes obtaining in the brewing business—(a) production of draught beer; and (b) bottled beer. Accounting procedures are instituted whereby distinct profit pictures for each process are depictable.

The author emphasizes the current use of standard costs and budgetary control techniques by modern breweries.

Mr. Dugdale says "the modern practice in brewery accounting is the use of two Nominal Ledgers—one relating to the general activities of the company in production and marketing; and the other to the operating of managed licensed premises."

THE PEACE-WAR ECONOMY AT THE 90 PER CENT COLD WAR AND 10 PER CENT HOT WAR STAGE—by Dr. Julius Hirsch, in the Controller, August 1950.

Dr. Hirsch first points out possible eruption areas in case of further expansion of the hot war; then looks into his crystal ball to describe present changes in the economic structure of the U.S.A., and to forecast the likely pattern of economic stresses yet to appear.

RANDOM QUOTES

"At the outset of World War II, we had 9 to 10 million unemployed—at this moment we may have 3 million—every war-needed shift of labor will be much more difficult than before."

"In 1939 we had declining prices rather than stable ones. Now the vulnerability of our whole price system is obvious."

"Even a small-scale mobilization means under present circumstances a shot-in-the-arm for inflation."

"No over-all controls can be imposed at the 10% stage of a shooting war."

"As our stockpiling may, after a short time, prove insufficient, we expect voluntary priority agreements to develop."

"The boom in consumer durables and in housing will certainly be considerably impaired."

"Larger inventories, a worry yesterday, will become a blessing."

"The attempt to limit consumption of hard goods by credit restrictions and less liberal mortgage terms will surely be made."

"The first worry of the Administration must be to protect centers of communication."

"Decentralization of work should be considered in every manufacturing industry."

"Our monetary policy will soon implement all anti-inflationary measures short of direct controls."

"If the hot war should spread beyond the 10% limit, we would be faced with a rather difficult situation: in 1945, more than 12 million persons were in the armed forces, our active non-military labor force had grown from 1939 to 1945 from 45½ to 55 million. Now we employ 61½ million in civilian jobs. The labor 'reservoir' is much smaller relatively than in 1941 when we openly entered the cold war, then called 'lend-lease'."

"As soon as the hot war goes beyond, say 40%, strict allocation for all war orders should be introduced, instead of a number of preliminary attempts such as the Controlled Materials Plan and other half hearted measures tried during the first years of War II."

This should be interesting reading for any Canadian. Our own economy is very closely integrated with that of the U.S.A. The pattern of events to come cannot be too much different here than in the U.S. By this time, we all know the contents of Mr. Abbott's latest budget; and Dr. Hirsch's comments are all the more significant because some of his prophecies are already taking form.

A PROPOSED RECONCILIATION OF STANDARD AND CURRENT MATERIAL COSTS—by L. L. Benninger, in the Accounting Review, April 1950.

Much has been written in recent years about the Economic vs. the Monetary expression of profit and net worth. Many suggestions have been made as to specific methods of revaluating costs and inventories, so that consumption and residuals may be expressed, not in the dollars actually paid for the material content thereof, but instead in the dollars which they are considered to be worth to-day.

Mr. Benninger's article provides a parallel approach in theme, but differs from that of many writers in that the vehicle of accomplishment might be almost termed a specialized accounting system.

Briefly stated, Mr. Benninger suggests that an orthodox standard cost system be maintained until the work cycle is completed and the products enter finished goods inventory. Raw material account is carried at standard cost, and the price variance is recorded specifically. Work-in-process account is charged at standard cost, and attendant variances are similarly set up specifically. Finished goods account, however, is charged at a figure in which is included, not the standard cost of direct materials contained in finished product, but instead a cost which corresponds to the present market replacement price of the direct material content. This creates a variance which the author terms "Reserve for Inventory Price Fluctuations".

Finished goods are always credited at a sum which provides for product raw material content being invariably valued at the price of its latest market offering. This means that no constant value exists for raw material constituents of a product unit, without frequent adjustments to the "received" column of the finished goods account. Such adjustments are required, but always in the light of the most current market offering of raw material. The complementary entry will be to "Reserve for Inventory

Price Fluctuations" account. This means that selling prices set upon the basis of cost of goods sold will always allow equitable provision for replacement costs.

To round out his suggested accounting procedure, the author also suggests the revaluation at month-end, on a current market basis for raw material, of raw material and work-in-process accounts. Adjustments to these accounts again have their complement in entries to "Reserve for Inventory Price Fluctuations" account. However, these accounting entries, like accrued liabilities, are reversed at the beginning of the subsequent month.

RATING EMPLOYEE AND SUPERVISORY PERFORMANCE (A Manual of Merit-Rating Techniques)—published by the American Management Association.

This book deals with Merit Rating; its many problems, aspects and applications.

Whereas Job Evaluation is the measuring scale applied to the job itself; Merit Rating provides the means of measuring how the staff-member measures up to the job.

Merit rating is inevitable, whether it be formal or otherwise. As Dr. Reign Bittner writes in one of the component chapters: "As long as two people are thrown together, each will make judgments about the other. Even if our population were reduced to the proverbial 'last man on earth', he would form judgments about various aspects of his environment. And forming judgments about people or things is all that we mean by rating."

Formal Merit Rating, it is pointed out, contributes much more than just a basis of salary adjustment within a job range. To quote Dr. Bittner again, some of the aims and purposes of Merit Rating are:—

1. To help in deciding who should be promoted, demoted, or given a raise in pay.
2. To discover workers' weaknesses as a basis for planning training.
3. To uncover exceptional talents.
4. To furnish a basis for discharge of totally unfit employees.
5. To help top supervisors learn how each person is appraised by his foreman.
6. To help top supervisors judge the fairness, severity, or leniency with which supervisors judge their people.
7. To help in assigning work in accordance with workers' ability.
8. To serve as a check on employment procedures generally and interviews and tests specifically.
9. To stimulate people to improve.
10. To develop people's morale through stimulating confidence in management's fairness.

The American Management Association is responsible for the issue of many valuable publications every year. The quality of this work parallels some of their best efforts; and will contribute greatly towards a better knowledge of and a firmer conviction for Merit Rating.

The manual is of book length—192 pages. It is very comprehensive; and contains the views of not one writer, but those of a number. The subject matter is well co-ordinated notwithstanding the number of contributors.

Accounting and Economic Business Profit

By HERMANN C. MILLER, C.P.A.

Chairman and Professor of Accounting, Ohio State University

The concept of business profit as expressed by the economist and the accountant are at great variance. As a basis for comparison, the author uses the theories as presented by the noted economist J. M. Keynes. While it is not suggested that any attempt be made to incorporate the economic concept of business profit in financial statements, the article does offer an interpretation of the accountant's determination of business profit in the light of prevailing economic conditions. As the author states: "this is the fourth and highest role which the accountant plays in the chain of recording, classifying, reporting and interpreting."

INTRODUCTION

An extensive study of Business Income was initiated by a Study Group organized in 1948 by the American Institute of Accountants. Mr. Percival F. Brundage is chairman of the group and Mr. George O. May serves as Research Consultant. The first paper published was "Business Income Under Present Price Levels". It was read before the Study Group on October 16, 1948, by Mr. Arthur H. Dean. The approach taken was chiefly from a legal viewpoint. The second paper published was "Business Income and Price Levels—An Accounting Study". It was prepared by Mr. May and distributed under the date of July 1, 1949. These two papers have made important contributions to the current discussions of the meaning of Business Income.

While I have used the word "profit" in the title of this paper, I expect to also refer to "income". It is my purpose to examine briefly the economic theories found in recent writings and to compare them with the traditional or conventional accounting concepts of "Business Profits" or "Business Income".

First, let us review a statement published by The National Association of Manufacturers last December.[1]

> "Current methods of depreciation accounting do not reflect changes in the purchasing power of the

1. The National Association of Manufacturers, "Industry Believes", December 1949, New York, pp. 53 - 54.

Alert management takes advantage of all services which earn profits or control costs— — especially those of the *Engineer*

The function of the consulting management engineer is to aid the administrators in solving specific management problems; devising and giving effect to better management methods and providing such other advice and help as may enable busy executives to get quicker and better results than would otherwise be possible.

We supplement successful management in the following areas:

- ORGANIZATION FUNCTIONS
- BUDGETARY CONTROL & STANDARD COSTS
- SIMPLIFIED COSTING
- INVENTORY CONTROL
- SIMPLIFICATION OF PAPER WORK
- KEY MAN BONUS PLAN
- JOB EVALUATION
- PRODUCTION CONTROL
- MARKETING COSTS
- CONTROL OF SALES
- PLANT & OFFICE LAYOUTS
- INCENTIVE PLANS

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dollar. Under present high prices, depreciation charges understate the value of capital consumption and fall far short of replacement costs. Reported profits overstate true profits by corresponding amounts. Special replacement reserves set up out of profits moderate the problem to some extent but do not solve it as the funds available for such reserves are first reduced by the amount of income tax.

"The only complete cure for this problem is a change in depreciation accounting, for both business and tax purposes, to reflect changes in the price level. Such a departure from current depreciation accounting appears desirable . . . "

If reported profits overstate true profits, it certainly is important to know what are true profits. Possibly economists can offer accountants help in the search for a correct definition of true profits.

Economist's Concept of Income and Profit

In order to understand the economist's concept of income and profit, an accountant should forget, at least for a while, his own concept of income, profit, cost, and almost every term with which he is acquainted. This becomes a sort of an adventure into a foreign language. It sounds like ours, but be not deceived —it could as well be expressed in Chinese. So let me start with a few economic definitions taken from the noted English economist, John Maynard Keynes.

User cost—The amount of the entrepreneur's purchases from other entrepreneurs (goods and machinery) plus the current disinvestment involved in using the capital equipment.

Capital equipment—Both the entrepreneur's stocks of unfinished goods and his stocks of finished goods, the latter apparently meaning both goods for sale and machinery and equipment, etc., held for use.

Factor cost—Payments made to the factors of production, meaning wages of labor, salaries of management, interest on capital, and rent of land.

Prime cost—Factor cost plus user cost.

Gross profit or income of the firm—Net sales less prime cost.

Now for a simple calculation of user cost, which from the definition involves purchases of goods for sale and current depreciation, variable according to rate of machine use, the economist offers this:—

> "The actual value of the capital equipment at the end of the period is the net result of the entrepreneur, on the one hand, having maintained and improved it during the period, both by purchases from other entrepreneurs and by work done upon it by himself, and, on the other hand, having exhausted or depreciated it through using it to produce output. If he had decided *not* to use it to produce output, there is nevertheless, a certain optimum sum which it would have paid him to spend on maintaining and improving it."[1]

From the value of the capital equipment at the end of a period of non-use deduct the "certain optimum sum for maintenance," leaving as a remainder the maximum net value which might have been conserved from the previous period if there had been the decision not to use the equipment.

From the maximum net value which might have been conserved from the previous period under conditions of non-use, deduct the value of the capital equipment at the end of a period of use (taking into consideration maintenance and improvement and exhaustion or depreciation). To this add the purchases to determine user cost.

THE ECONOMIST'S CALCULATION OF USER COSTS

(Set up as an Accountant would present it)

Capital equipment—Value at end of a period of non-use		
Consisting of:—		
	Plant assets	$ 100,000
	Inventories (same as at the beginning of period——no sales)	100,000
G^1	Total capital equipment	$ 200,000
B^1	Less: An optimum sum (certain) which it would have paid us to spend on maintenance and improvement.	

1. Keynes, John Maynard, The General Theory of Employment, Interest and Money, 1935, pp. 52 - 53.

Let us assume someone can determine this "certain sum" and that it is	2,000
$G^1 - B^1$ Amount conserved from the previous period (non-use)	$ 198,000
Capital equipment—Value at end of a period of use	
Consisting of:—	
Plant assets—because of use during the period to produce output valued at (Unit of production method used)	$ 90,000
Inventories — because of purchases and sales, plant having been used to produce output—now	120,000
G Actual value of capital equipment at end of period of operation	$ 210,000
A_1 Purchases during the period—to maintain and improve our stock of merchandise for resale	$ 600,000

Formula:—User cost=A_1+(G^1—B^1)—G
User cost=$600,000+$198,000—$210,000
User cost=$588,000

The accountants analysis of user cost—$588,000.

Cost of goods sold—Initial inventory	$ 100,000
Purchases	600,000
Total	$ 700,000
Ending Inventory	120,000
Cost of goods sold	$ 580,000
Depreciation—at 10% per annum because of production output which equalled 10% of the total capacity of the plant to produce in its whole life	$ 10,000
Less:—An optimum sum (certain) which we would have paid out anyway if we had not operated the plant. An amount assumed to have been determined	2,000

This is the depreciation caused by use of the machinery	$ 8,000
Total user cost	$ 588,000

Note:—User cost is composed of

(1) User-cost of sales-turnover, and	$ 580,000
(2) Current disinvestment involved in using the equipment	8,000
Total as above	$ 588,000

In order that the accountant may appreciate sympathetically the economist's point of view, the following quotation is reproduced here:—

> "A little reflection will show that all this is no more than common sense. Some part of his outgoings to other entrepreneurs is balanced by the value of his current investment in his own equipment, and the rest represents the sacrifice which the output he has sold must have cost him over and above the sum he has paid out to the factors of production. If the reader tries to express the substance of this otherwise, he will find that its advantage lies in its avoidance of insoluble (and unnecessary) accounting problems. There is, I think, no other way of analyzing the current proceeds of production unambiguously."[1]

Now at this point we have developed the economist's concept of gross profit or revenue of the firm as follows:—

Net sales		$1,300,000
Less:—Prime costs, consisting of Factor costs:—		
Wages	$ 300,000	
Salaries	75,000	
Rent	15,000	
Interest	40,000	
Total Factor cost		$ 430,000
User cost:—		
User cost of sales-turnover	$ 580,000	
Current disinvestment involved in use of equipment	8,000	

1. Keynes, p. 66.

Total User cost	588,000
Prime Costs	$1,018,000
Gross profit or revenue of the firm	$ 282,000

In calculating gross profit or income, Keynes says: "We have dealt so far with that part of the change in the value of the capital equipment at the end of the period as compared with its value at the beginning which is due to the *voluntary* decisions of the entrepreneur in seeking to maximize his profit."[1]

That, I think, clearly established the accountant's cost principle for depreciation through use of equipment—at least up to a point of the economist's concept of gross profit or income as he defines those terms. I believe most accountant readers will agree that that concept of gross profit conforms very closely (if indeed not exactly in many simple situations) to the accountant's concept of net profit resulting from current year's operations—leaving aside the extraneous items of income and expense not clearly or wholly resulting from the management's initiative or responsibility. This economic concept of gross profit or income has been developed in accordance with one or two possible principles for calculating income. It is the production principle, according to Keynes, and it is predicated wholly upon voluntary decisions made by the entrepreneur. In his capacity as a *producer*, Keynes says prime cost and gross profit, as defined, are the significant concepts.

Now there is the other principle for calculating income. It is the consumption principle, according to Keynes, and it is predicated wholly upon involuntary losses or gains occurring for reasons beyond the control and irrespective of the current decisions of the entrepreneur. Keynes says the entrepreneur in his capacity as a *consumer* is interested in these involuntary losses or gains. Now these involuntary losses and gains are of two kinds. The first of these are not unexpected. He mentions examples—a change in market values, obsolescence, passage of time (depreciation), or destruction by catastrophe. They are losses sufficiently regular to be foreseen, if not in detail, at least in the large, and commonly regarded as insurable risks. Depreciation included here is involuntary but not unexpected such as the excess of expected depreciation over user cost deprecia-

1. Keynes, p. 56.

tion. In the entrepreneur's capacity as a *consumer* these losses and gains (called supplementary costs) work on his mind in the same way as if they were a part of prime cost. Hence net income is defined as gross income less supplementary cost.

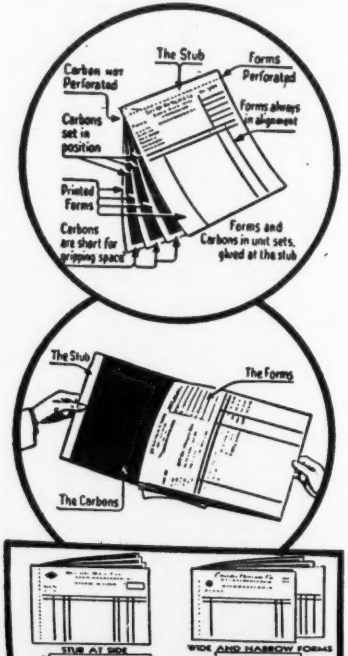
Now there remain other losses or gains, due to unforeseen changes in market values, exceptional obsolescence or destruction by catastrophe which are both involuntary and, in a broad sense, unforeseen. These are disregarded in the reckoning of net income and are called "windfall loss". Windfall loss is, according to Keynes, a proper charge to capital—I suppose he means surplus in the language of the accountant. (Here I imagine he was influenced by English law relating to payment of dividends.)

Gross profit or income is significant to the entrepreneur in his role as a producer. Net profit or income is significant to him in his role as a consumer, in reckoning the available income when deciding how much to spend on current consumption and how much to save. But net profit or income is not the only factor in this decision. Windfall losses or gains affecting capital account also make a difference but they do not enter into the consumer's decision on the same scale—"a given windfall loss does not have the same effect as an equal supplementary loss."[1]

Having established this position Keynes observes that a fine line divides supplementary costs (expected when equipment was originally acquired) from windfall loss. A re-estimate and recalculation of the supplementary cost on the basis of current values and expectations at arbitrary intervals he labels reasonable in certain circumstances. Thus by recalculation at intervals supplementary costs absorb all of windfall losses. On this point he states that business men differ as to which course they adopt. I conclude that he is willing, therefore, to leave the problem for optional solution.

Now to interpret what has been said in the language of the accountant I suggest the following:—Revenue less expense (including depreciation on original cost) measures income for the producer. That is the value of the output less the factor cost and user cost. As a consumer, the entrepreneur must also deduct the expected obsolescence and insurable risks before deciding what income remains for his consumption. To a lesser degree he will also consider any windfall loss before making

1. Qeynes, p. 58.



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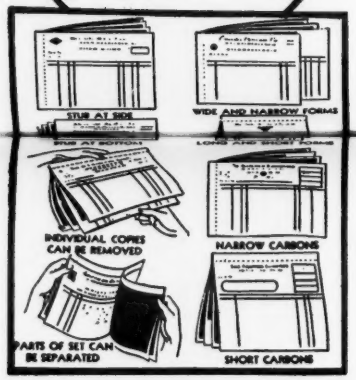

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decisions as a consumer. But expected obsolescence and insurable risks may be recalculated periodically to include windfall losses. In this case windfall loss will disappear altogether. Those who now advocate the calculation of depreciation on replacement cost are looking at the problem solely from the entrepreneur's role as a consumer. Those who now advocate the use of depreciation solely on the basis of original cost are looking at the problem from the entrepreneur's role as a producer. He stands in both roles at one and the same time. If this is so, it appears reasonable to expect the development of an accounting procedure to fit each of these two roles. But such a solution is yet to emerge and to receive universal acceptance. First of all, there is the question of accounting for purposes of producing tax revenue. There is the question of accounting for the many and varied interests—employee, management, owner, creditor, prospective investor, etc. The public generally cannot easily understand two different sets of accounts for a single enterprise for a stated period. The "answer" for most people is "black" or "white". That the answer may be white for the purposes of the producer role and black for the purposes of the consumer role appears to many persons as wholly out of reason. As accountants we have the delicate problem then of trying to serve both purposes in a simple manner. A complex situation requires an elementary and easily understood solution.

Accounting Concepts of Income

In the 1948 Revision, "Accounting Concepts and Standards Underlying Corporate Financial Statements,"[1] the following statement was made:—

> "The most commonly useful financial statements report the origin and disposition of the assets of an enterprise in terms of costs established and recorded at the time the assets are acquired. The importance of costs as a record of the accountability of an enterprise for its resources makes it essential that their determination be based on available objective evidence. When an asset is purchased such evidence is found in the cash outlay, in the fair market value of any non-cash consideration, or, in the absences of these measures of cost, in the fair market value of the asset acquired."

1. Executive Committee, American Accounting Association.

And again quoting from that published statement:—

"There should be no departure from the cost basis to reflect the assets of an enterprise at amounts higher than unassigned cost. Continuous replacements of assets, frequently of a type different from those replaced, and the practical difficulty of measuring replacement value, emphasize the need for a historical record in terms of the consistent, objective basis of cost."

"Revenue is a generic term for (a) the amount of assets received or liabilities liquidated in the sale of the products or services of the enterprise, (b) the gain from sales or exchanges of assets other than stock in trade, and (c) the gain from advantageous settlements of liabilities. Revenue does not arise from a gift."[1]

"Expense is the cost of assets or portions thereof deducted from revenue in the measurement of income. These deductions arise through a current expenditure of cash, a total or partial expiration of asset cost, or the incurrence of a liability."[2]

"The income of an enterprise is the increase in its net assets (assets less liabilities) measured by the excess of revenue over expense."[3]

In a monograph written by Professors W. A. Paton and C. A Littleton:—[4]

"The significance of the depreciation charge is widely misunderstood. The view persists that depreciation is a hypothetical, arbitrary item, in sharp contrast to the ordinary 'out-of-pocket' costs of operation. There is also a very common tendency to confuse depreciation accounting and the financing of replacements; the basic purpose of accruing depreciation, many seem to think, is to accumulate funds to provide for the renewal of plant assets. At the best these ideas represent half-truths and as ordinarily applied they suggest conclusions that are definitely erroneous.

"The importance of the cost standard is such

1. American Accounting Association, Accounting Concepts and Standards Underlying Corporate Financial Statements, 1948 Revision, p. 3.
2. Ibid., p. 4.
3. Ibid., p. 3.
4. An Introduction to Corporate Accounting Standards, American Accounting Association, Monograph No. 3, 1940, pp. 88, 134.

> that when estimated replacement costs or any other appraisal estimate is introduced into the accounts and reports, it should be done in such a way as not to obscure the recorded cost data. Similarly, if accrued depreciation to date is computed on some other basis than actual cost and such computed figure is introduced into the accounts and statements it should be done in such a manner as to make it possible at all times to determine the total accrual to date on the cost basis."

Those who subscribe to these statements are thinking of the role of the entrepreneur as a producer. But they do not preclude recognition of his role as a consumer.

> "... those who advocate the elaboration and extension of accounting often become unreasonably critical of conventional procedure and unduly enthusiastic as to the possibilities of improvement through the avenue of special interpretation and revision of recorded figures. There is no excuse for unwillingness to consider all promising suggestions for the betterment of accounting, but neither is there any excuse for the adoption of unorthodox proposals without a critical examination."[1]

Let us assume a hypothetical case of three business men, Adams, Johnson and Robbins. In 1940 Adams was possessed of $100,000 in cash which he immediately invested in a productive plant. Johnson and Robbins were possessed of $100,000 and $200,000, respectively, in a bank account which earned no income during the ensuing years. Adams plant was profitably employed during the years 1941 to 1949 inclusive. According to accounting concepts and standards just described the annual profits were $10,000, all of which have been retained in the business. He continued operations at the beginning of 1950 with sufficient funds not only to replace $90,000 of his plant investment now having a remaining life of one year but he also had accumulated retained net earnings amounting to another $90,000. On January 1, 1950, Robbins decided to invest his $200,000 in a plant identical with that which Adams had acquired at the end of 1940 for $100,000. During the year 1950 Adams and Robbins had identical amounts of revenue and

1. Paton and Littleton, p. 119.

identical amounts of cost except for the item of depreciation which was $10,000 for Adams and $20,000 for Robbins. As a result, Adams' accountant reports a net profit of $10,000 while Robbins' accountant, using the same accounting methods, reports no profit at all. On December 31, 1950, Adams' plant is exhausted and he faces the necessity of replacement at a cost of $200,000. However, although he began business with $100,000, he has not only recovered the original investment but he has accumulated another $100,000 reported to him as profit under standard accounting methods. His original capital of $100,000 has now become $200,000 and in spite of a price rise in the cost of the replacement he may continue in business on even terms with Robbins. Johnson still has his original capital of $100,000. Of course it won't buy as much as it would have bought in 1940. Now let us appraise the situation as to these three men.

Johnson is still worth $100,000. Shall we say he has remained static? Adams now is worth $200,000 although he started with the same amount that Johnson had in 1940. Shall we say he has also remained static? Robbins now is worth $200,000, as he was in 1940. Shall we say he has remained static?

If we tell Adams he hasn't made any profit after ten years of running until he is breathless then it would seem that both Johnson and Robbins have lost money. It is true they missed opportunity to do what Adams did. The only solution which makes sense to me in this situation is to report that Adams earned $100,000 during the ten years while Johnson and Robbins earned nothing. With the earnings, Adams is now able to continue with his business. Without those earnings he would now be in the same position as Johnson—unable to acquire a plant because cost of acquisition has outstripped his available capital.

How about the relative results of Adams and Robbins for the year 1950? Shall we report to them that they came out equally as a result of the year's work? Did Adams not in fact have a differential advantage over Robbins in that year due to his lower cost of productive factor? If there was no difference in the results for 1950, what shall we say as to the results for 1951 after Adams has replaced his plant at a cost exactly equal to that invested by Robbins? Certainly the differential advantage held by Adams in 1950 has disappeared after the re-

placement at higher cost. Yet shall we report that the relative results of these two men are the same in both years? Now let us return to Johnson. He hasn't done a thing during any one of the eleven years. How much shall we report he has lost? Opportunity was lost but how shall we measure it objectively? But suppose in 1952 a depression occurs and he can acquire an identical plant for $50,000. Meanwhile Adams and Robbins have suffered irreparable losses and are forced out of business. Now Johnson has taken the best opportunity of the three men, for he has a good plant and still has $50,000 in cash. I think we would look a bit ridiculous to have told him he lost money by waiting to enter business. I think we were right when we told Adams he had earned a profit of $100,000 by the end of 1950. His mistake was to continue in business at the high replacement cost which caused profit to disappear, and eventually his capital to be lost.

Conclusion

It is not possible, then, in light of the Keynsian point of view that the business man plays two roles, that of producer and that of consumer, to calculate his profit resulting from production by use of the cost principle and then to interpret the profit remaining and available for him to consume (spend) or to save for reinvestment at a higher price level? This seems to me makes the best sense. Profit resulting from production reflects the commitment made when he entered into business, made decisions relative to operations, and gives him a better understanding of his relative position with competitors who have entered business at other dates and on other price levels, or who in the cycle of replacement may have found it necessary to reinvest earlier in portions of plant at a higher or lower price level. Certainly, that business man who acquired plant at lower price levels than now prevail and who still uses the original plant will need the additional help which accountants are, I believe, best qualified to offer in deciding how much of the "production" profit is available for current consumption and how much should be saved for ultimate replacement of plant or inventory at a higher price level. This is the fourth and highest role which the accountant plays in the chain of recording, classifying, reporting and interpreting.

Cost Accounting in a Diversified Food Industry

By J. GRANT McKNIGHT, R.I.A.

This is an abridgement of the Thesis presented by the author to qualify for the R.I.A. degree, and is being published in two parts. Part I includes the first three sections dealing with Account Classification, Budgeting and Standard Costs, Actual Costs. The remaining three sections will appear in the November issue and will include the author's treatment of Inventory Control, Sales Analysis and Distribution Costs, Presentation.

INTRODUCTION

This Cost System has been designed to fill three of the most important needs of any industry practising the modern concept of scientific management, that is (1) Cost Control (2) Accurate and timely profit results and analysis (3) adequate inventory control.

It is found that (a) a system of Actual Process Costs compared with statistical Standards best accomplishes the purpose of Product Cost Control. (b) that Marketing and Administrative expenses can be controlled by a budgetary system of accounting which pin points the cost of distribution by Class of Trade, Commodity, Geographical Zone, Salesman, Territory and Division. (c) that by a tightly organized and integrated timetable of cost accounting sequences, it is possible to produce actual unit costs for all the many products in sufficient time to meet the requirements for preparation of Profit Statements which are discussed by Management on the 10th of the month following the period under review. (d) that a system of progressive inventory count and stock review coupled with a perpetual inventory record which is *current*, provides the information necessary to properly control one of the most important assets.

In the following outline of this Cost System, it is proposed to consider the various aspects under these broad headings:—

(1) Account Classification
(2) Budgeting and Standard Costs
(3) Actual Costs
(4) Inventory Control

(5) Sales Analysis and Distribution Costs
(6) Presentation

ACCOUNT CLASSIFICATION

It seems a necessary prerequisite to the discussion of any Cost System, that the Account Classification be examined. In this system, the Manufacturing Ledger is controlled by one account of the same name in the General Ledger. Since all elements of cost are eventually absorbed into Inventories, the Manufacturing Ledger is comprised of but only three broad divisions, namely, Finished Stock, In Process, and Raw Materials. However, to find the unit costs of each Finished Commodity and further to assess the efficiency with which each item was manufactured, it is necessary to design a classification of accounts which will reflect the cost of each product, divided into the Cost Elements of Direct Labor, Direct Material and Burden. There is no problem of Account Classification involved in Direct Labor and Material, since such elements are charged directly to the Commodity, but such is not the case with Burden (Overhead Expense).

Factory expenses are divided for classification into two main parts (a) those which cannot be directly charged to a Department or Cost Center without apportionment on some more or less arbitrary basis (b) those which can be directly allocated to a specific Department or Cost Center without equivocation. Departmental Overall Expense Accounts are provided for each Operating Department to which is charged all expenses in class (b). By means of these Overall Accounts, the undesirable effect of a composite burden ratè is minimized and as a matter of fact it is found possible to charge over half of all the Overhead Expenses in this way.

BUDGETING AND STANDARD COSTS

1. Budget

It is not intended to discuss the Budget preparation in any great detail but merely to provide a general outline of the budget plan. The budget philosophy of the Company does not expect the budget to run the business but is certainly considered as a most necessary tool in the hands of management with which to guide the profit destiny. It is fully realized that a complete budget system is only as good as the accuracy of the Sales Forecast and its subsequent flexible ability to adjust itself to

an increase or decrease in actual sales volume. The Sales Forecast is developed by Commodity, District, Zone and Trade Classification for a year in advance and subdivided and weighted by quarters.

As soon as the Sales Forecast has been approved, Factory Departmental, Capital and Cash Budgets are prepared. Although by this time, Direct Material and Labor Standards have already been set and certain preliminary work on departmental budgets may have been accomplished, the budget preparation will be outlined in the following order:—

(a) Direct Material

The Cost Department, in co-operation with the Purchasing Department, calculate material standards for all Finished Commodities. The Raw Material prices used are either (a) Current Inventory Averages (b) a combination of projected futures with inventory averages. Before using the latter method, however, there is authentic market information available which provides sufficient reason to believe that projected prices will be reasonably accurate. Material Standards are not allowed to remain static but are revised throughout the year as price fluctuations become apparent.

(b) Direct Labor

Direct Labor Standards are for the most part, based upon operational time studies. However, where processes are not continuous but are rather used at infrequent intervals, the average unit cost of a representative "run" is considered as the Standard.

(c) Production Forecast

The production necessary to meet yearly sales requirements is calculated by increasing or decreasing the Sales Forecast by the quantities which the Finished Product Inventory is over or under "Normal" floor stock required for the first month of the subsequent year. This forecast is used by the Production Department as the basis for estimating capacity and expenses necessary to meet the production volume indicated.

(d) Burden

Budget Burden Work Sheets are prepared by the Cost Accounting Department for each repair or expense account in the manufacturing account classification over which the Pro-

duction Department has some measure of control. These Work Sheets exhibit information on the expenditures of the previous year which is amplified at the request of the Production Department. Estimated Expenditures for the Current Year are calculated by the Production Department, taking into consideration production volume, necessary maintenance program, plant capacity, etc., tempered with the expenditure experience of the past year.

The Burden Estimates are checked by the Cost Department for mechanical accuracy and reasonableness in relation to their concept of the standard for each account. If the Cost Department feels that certain estimated expenditures are "out of line" the matter is referred back to the responsible official for further consideration. Fixed charged such as Depreciation, Taxes, Insurance, etc., are estimated by the General Accounting Department and transmitted to the Cost Department for inclusion in the Burden Estimates.

2. Standard Costs

With the information outlined above, the Budgeted Unit Cost of each product is calculated by the Cost Department and compared to the previous year's standard. If a wide variation exists, it is investigated, discussed with the Production Department and revisions made as necessary to make the Standard practical and possible of attainment.

The tentative standards are applied to the Sales Forecast and become an integral part of the "Profit Forecast". If the standards fit satisfactorily into the overall profit plan for the year, they are approved by the Management and become a measuring stick of the efficiency of the Factory operations.

ACTUAL COSTS

This Company has not accepted the popular trend toward Standard Costs as a composite part of the accounting system. It is believed that Actual Costs have many advantages over Standard Costs for this particular organization. However, Standards are used on a statistical basis for comparison with actual performance and as one of the factors in product pricing.

It would seem that the introduction into the subject of Actual Costs would not be complete without repetition of the well known fact that "A Cost System and its ultimate results is not one whit better than the accuracy of the initial figures re-

DIVERSIFIED FOOD INDUSTRY

PLANT BURDEN

MONTH

	Period $			Accumulative $		
	Actual	Standard	Variance	Actual	Standard	Variance
Super & Clerical						
Laboratory						
Watchmen						
Clean-up Labour						
Repair Labour						
Holiday Pay						
Elevator						
Transfer Labour						
Sick Pay						
Workmen's Compensation						
INDIRECT LABOUR						
Laboratory						
Repair Materials						
Auto Expense						
Light						
Heat						
Water						
Group Insurance						
Supplies & Expense						
Travelling Expense						
Warehousing						
Unemployment Insurance						
Recreation Club						
Pension Plan						
Health Plan						
INDIRECT EXPENSE						
Depreciation						
Taxes						
Insurance						
FIXED CHARGES						
Total Burden						
Overall Variance						
TOTAL VARIANCE						

DISTRIBUTION TO PRODUCTION DEPARTMENTS

Department	Burden Absorbed	
	Period	Accum.
Dessert		
Extract		
Fruit		
Marmalade		
Pudding		
TOTAL		

EXHIBIT No. 1

ported by the Production Department." An integral and most important part of any successful cost system is the training of production personnel to realize the importance of the figures which they have tabulated and reported on Production, Labor, Waste, Material usage, etc. This training can be done successfully by (a) showing dramatically the results of sloppy reporting (b) appealing to the individual's sense of importance by revealing the fact that reports to management are no better than he personally makes them. (c) As a last resort, disciplinary action which means top management must be *accurate cost* minded.

OVERALL STATEMENT

DEPARTMENT MONTH

Unit 100 Lbs.	Total Prod.		Production By Commodity				Mach. Hours Net	Mach. Hours Per Hr.	Man Hours Total	Man Hours Per Hr.
Per										
Cum.										
Std.										

LABOUR

	Cost Per			Cost Dollars					
				Period			Accumulative		
	Actual	Acc.	Std.	Actual	Standard	Variance	Actual	Standard	Variance
Repair Labour									
Clean Up Labour									
Supervision									
Set Up Labour									
Workmen's Comp.									
Overtime									
Delay Time									
TOTAL LABOUR									

EXHIBIT NO. 2

EXPENSE

Repair Material									
Supplies and Expense									
Electric Power									
Steam									
Machine Rental									
TOTAL EXPENSE									
TOTAL OVERALL									

Departments — Month

PRODUCT MANUFACTURED		Production	Mach hrs.	man hrs.	Cost Dollars: Materials	Pkg.Material	Direct	Overall	Burden	Total	
	Per										Variance
	Cum										
	Per	Per Hr.									Prior Year
	Cum	Per Hr.									Standard
	Per										
	Cum										
	Per										
	Cum										

EXHIBIT 3

PREPARATION STATEMENT

Month _____ Dept. _____

Commodity Production	Unit Cost Per	Unit Cost Cum	Acc. Cost Dollars Per	Acc. Cost Dollars Cum	Unit Cost Per	Unit Cost Cum	Prior Year	Acc. Cost Dollars Per	Acc. Cost Dollars Cum
Overall									
Direct Labor									
Conversion									
TOTAL MAT.									
TOTAL COST									

Commodity Production	Unit Per	Acc.	Per	Unit Accum.
Overall				
Direct Labor				
Conversion				
Total Mat.				
Total Cost				

EXHIBIT NO. 4

Commodity Production	Unit Per	Acc.	Per	Unit Accum.
Overall				
Direct Labor				
Conversion				
Total Mat.				
Total Cost				

Of course, the human element of error is inevitable with the result that double checks are necessary throughout the system of production reporting which are designed to discover errors within a few hours of the time they are made. This time element is of great importance since if an error is not apparent until several weeks have passed, the trail is cold and responsibility difficult to determine.

The Production Departments in this Company report the production daily of each commodity to the Cost Department and the Finished Product Warehouse reports the quantity of each commodity received. Any discrepancies between the two reports are traced the very next day, with the result that production figures are double checked and the stock at the close of the cost period checks with the Book Records.

Month — MISCELLANEOUS OPERATIONS

Buds in mould	100 Dox. Prod.	Mach. Hrs.	Prod. M/H	Man Hrs.	Prod. M/H	
Period						
Accum.						
	Period Dollars			Accum. Dollars		
	Actual	Std.	Var.	Actual	Std.	Var.
Direct Labour						
Workmen's Comp.						
Overtime						
Starch Waste						
Conversion						
Sugar						
Total Cost						

Buds Finished	100 Dox. Prod.	Mach. Hrs.	Prod. M/H	Man. Hrs.	Prod. M/H	
Period						
Accum						
	Period Dollars			Accum. Dollars		
	Actual	Std.	Var.	Actual	Std.	Var.
Clean up Labour						
Repair Labour						
Supervision						
Overtime						
Workmen's Comp.						
Supplies & Exp.						
Repair Mat.						
Power						
Total Expense						
Direct Labour						
Flavour Bud						
Total Cost						

Burnt Sugar	cwt. Prod	Mach. Hrs.	Prod. M/H	Man. Hrs.	Prod. M/H	
Period						
Accum.						
	Period Dollars			Accum. Dollars		
	Actual	Std.	Var.	Actual	Std.	Var.
Direct Labour						
Workmen's Comp.						
Gas						
Sugar						
Total Cost						

EXHIBIT No. 5

Before beginning the discussions of Actual Costs, a brief reference to the Factory Cost Exhibits will make our treatment of this subject more readily understandable. It is believed that the system in the matter of presentation is somewhat unique in that the actual charges are entered directly to the Cost Exhibits rather than to a ledger (card, loose leaf or otherwise). This means that a large part of the cost reports are produced as a by-product of our normal cost accounting routine in the development of unit costs for Cost of Goods Sold.

The Cost statements are divided into 6 types as follows:—

1. **Plant Burden Performance Statement—(Exhibit No. 1)** is designed to accommodate all the accounts applicable to the group of expenses not directly allocatable to a specific department. It exhibits a comparison of actual to budgeted

expenditures both for the period and accumulative to date. Note that the total expense variance (Overall plus Burden) is set forth so that the position of Actual versus Budget can be seen at a glance.

2. **Overall Statement—(Exhibit No. 2)**

   is designed to record overhead expenses *directly* chargeable to Departments. Again comparison with Budgeted Expenses are made, but in addition, Actual and Standard Unit Costs are compared for Current Month and Accumulative.

3. **Finished Commodity Performance Statement—(Exhibit No. 3)**

   is designed to exhibit cost information on each and every commodity manufactured. Production, Rate per Machine Hour, Rate per Man Hour and Unit Cost both Actual and Standard is set out. The variance column is used for Labor and Burden variance only since it is felt that material variances distort the operating comparison.

4. **Preparation Statement—(Exhibit No. 4)**

   is designed to exhibit important cost factors in relation to Standard.

5. **Miscellaneous Operation Statement—(Exhibit No. 5)**

   is designed to record entries and comparisons on service and miscellaneous Departments.

The further discussion of Actual Costs, as accounted for by this Company, will attempt to (1) outline the method of accounting for each type of charge (2) describe the method of Burden distribution and Absorption (3) list the sequence of accounting operations (4) outline relationship of General and Manufacturing ledger.

1. **Accounting for Cost Charges**

   (a) Labor and Casualty Insurance

Each day's Production of each product, as well as man hours and machine operating hours is recorded on a daily basis in the Cost Department on the Production Record. Toward the end of the cost period, the record is sub-totalled so that a minimum of time is taken at month end in arriving at the total of production, man hours, etc. for all commodities for the period under review.

Direct Labor Dollars expended against each commodity, as indicated on the Time Sheets, is posted to Departmental Labor Pool accounts rather than making a detailed distribution by products. Since the direct labor man hours have been collected and summarized by departments also, it is very simple to ascertain a direct labor rate, by dividing the total man hours expended departmentally into the total of the corresponding labor dollars. The Direct Labor charged to each commodity is then calculated by multiplying the man hours expended on each by the average rate for the department.

Before the practice of levelling the direct labor rates by Department or Cost Center was adopted, the Commodity unit labor costs were distorted by the rate variations within a department. In instances, where a short "run" of a product was made, it could readily happen that several of the highly skilled members of a production crew with correspondingly high wage rates would be detailed to this operation. The result was that labor costs were *high* on the commodities involved although the operation in itself was efficiently executed. This was obviously inaccurate and misleading.

The distribution of indirect labor, is accomplished by summarizing the dollar amounts indicated on the time sheets chargeable to the indirect labor accounts.

The Labor Distribution when completed and balanced to the total of the Factory Payrolls for the month, is posted to the Cost Statements. Labor which has been expended on behalf of some Department other than the plant is excluded from costs and journalized to the Department affected. When postings are complete, the entries are summarized on a Labor Summary and balanced to the total of the Labor Distribution.

Workmens Compensation is calculated on the Labor Summary by applying the proper departmental casualty insurance rate to the labor dollars. The resulting amounts are posted to the appropriate overall statements of the various Cost Centers.

(b) Charges for Expense and Repairs

All vouchers are forwarded from the General Accounting Department to the Cost Accounting Department after they have been charged to the Manufacturing Account in the General Ledger. The documents supporting the vouchers, i.e. Purchase Requisition, Purchase Order and Receiving Report, exhibit the Cost Center to which the various charges should be made. It is,

therefore, possible for the Cost Department to prepare a detailed distribution of the expense and repair charges on the form exhibited opposite this page.

At the close of the Cost period, the Expense and Repair distribution is totalled and the results posted to the Cost Statements opposite the appropriate accounts. To insure that the posting has been accurately accomplished, the charges are summarized departmentally from the Cost Statements on a Summary Sheet to balance with the total of the Expense and Repair distribution.

(c) Direct Material Used

For the most part, the materials used directly in manufacture are reported by the Production Departments on a daily basis on forms specially designed for the purpose. These reports are reviewed critically by the Cost Department for accuracy and given the "possibility test". In applying the possibility test, the following question must be answered. Is the material reported as being used normal in view of the production reported? Any figure that appears "out of line" is immediately checked with the responsible party and either explained or revised accordingly.

The nature of certain products, which in manufacture involve a combination of many ingredients in small quantities, preclude the practicability of reporting materials "used" with any degree of accuracy. This situation is particularly applicable to the Extract Department with the result that the system operates on a Standard Material usage basis which is corrected at intervals by physical inventorying. Of course, a daily record is not maintained for products such as these, usage being calculated at one time for the month's production.

After checking, the "Used" figures are transcribed to the material used accumulation sheets from day to day and totalled at month end to produce total "Used" for the period for each commodity. The accumulated "Used" figures are extended at the average unit cost of the various materials and the resulting dollars posted to the Commodity Performance Statements.

The "Material Used" accumulation sheets are designed so that material common to many products is always posted in the same column on all sheets which makes for ease in summarizing for posting to Inventory Records.

(d) Indirect Material Used

Material used indirectly in manufacture such as coal, oil, grease, etc. are reported at the close of each month by the various foremen responsible. The information contained on these reports is recapitulated by cost accounts; values extended and distribution made to the Cost Statements.

(e) Electric Power

Electric Power used per Meter Readings is reported to the Cost Department each month by the Plant Superintendent and amount to be charged estimated. Since the Machine Operating Hours of each Department and Operation is known, a basis of Power cost distribution is calculated by applying a predetermined machine power factor to the operating hours.

(f) Water

In this business, water represents a fairly sizeable cost each month. The number of gallons used is reported from Meter Readings and cost estimated. Over the years, experience has developed a fairly reliable departmental distribution formula based on operating hours, which is used in distributing this charge to the various Cost Centers.

(g) Steam

Steam is generated for use in cooking and sterilizing, the cost of which is ascertained in the same manner as any other service department. Steam Costs are distributed to the various cost centers on the basis of consumption as indicated by measuring devices maintained in the departments involved. A separate boiler is used for heating the plant and office buildings.

(h) Material Preparation

In the discussion of Cost Exhibits it was noted that Product Performance Statements were divided into two groups, i.e., (a) Preparation (b) Finishing. The Preparation Statements record the cost of manufacturing the product in batch form and the Finishing Statements exhibit the cost of packaging. In certain cases the process requires that the entire batch be packaged in the "run" which means that the entire preparation cost may be transferred to Finishing without being passed through the Inventory. However, in other instances inventories of prepared or "In Process" materials are maintained.

2. Method of Burden Distribution and Absorption

(a) Method of Departmental Distribution

(i) *Departmental Overall Expense* (Expenditures Chargeable to Cost Centers *Direct)*

As stated in the discussion on Account Classification, Overall Accounts are charged with the actual expenditures for the month. At the close of the period, the totals according to the Departmental Overall Statements are distributed to the products manufactured by the respective departments on the basis of Direct Labor Dollars.

(ii) *Plant Burden* (Expenditures which cannot be specifically charged to a Cost Center)

For the most part this type of expense is distributed to Departments by three methods — (a) Direct Labor Dollars (b) Net Sales Dollars (c) Floor Space. Accounts are classified for distribution purposes by the applicable method group. For example (1) Supervision is distributed on the basis of direct labor dollars on the theory that the Department employing the most people will require the most supervision.

(2) Laboratory Costs are distributed on the basis of Net Sales Dollars on the theory that the expenses of quality control follows Departmental production volume and Net Sales Dollars provide a convenient common denominator for the proration over Cost Centers.

(3) General Clean Up is distributed on the basis of Floor Space because it is believed the area of the various departments is a fair basis of allocation. Certain other methods of distribution are used for specific accounts. For example, municipal taxes are distributed on the basis of appraisal values of the various departmental buildings while insurance is divided between departments on the basis of the estimated value of buildings and contents.

Undoubtedly, there will be a wide variance of opinion in the method which should be used for the different accounts and the theory supporting

such opinions may be absolutely sound. However, this Company distributes the accounts according to the method which is thought most fitting after considering the nature of the expenditure and the effect on the costs.

(b) Method of Burden Absorption

Burden is absorbed into Finished Products Cost on the basis of a rate per Direct Labor Dollar. Since the majority of the expenses comprising Burden do not ebb and flow in accordance with production volume, the "striking" of an absorption rate which will not over or under absorb actual expenditures over the year usually poses a cost problem of some magnitude. The method herein described seems to work admirably in this industry in providing an average absorption over the fiscal period.

As indicated in the previous discussion of the Budget, Burden expenses are estimated for a year in advance and each month a more realistic Burden Budget for the year is computed by dropping 1/12 of the budget each month and replacing that 1/12 with the actual expenditures. For example, at the end of March the yearly burden estimates would be comprised of 9/12ths of the yearly budget and the remaining 3/12ths of the actual costs for the month of January, February and March. The same procedure is applied to budgeted Direct Labor dollars so that at the end of any given month all the *facts* concerning burden expenditures and direct labor dollars have been mixed with the remaining budgeted figures: the brew getting weaker and weaker on *estimate* and stronger and stronger on *actual* as the year progresses.

New rates are calculated each month and while they do not fluctuate sufficiently to distort costs to any noticeable degree, they do vary enough to allow for any variation in production volume or unforeseen expenditures. Departmental rates are calculated by the division of yearly estimated Direct Labor Dollars into estimated yearly Burden expenditures. These rates multiplied by the *Total* departmental Direct Labor Dollars for the current month provides the burden dollars which should be absorbed by each department.

Burden is absorbed on Finished Products only, because for inventory valuation it is not thought advisable to allow overhead expenses to comprise a part of the cost of "In process"

materials. Consequently, a second absorption rate is "struck" by dividing the monthly burden dollars aforementioned by the Actual Finished Product Direct Labor Dollars. It is obvious that under this method the entire burden allocation for the period must be currently absorbed.

3. Relationship Between the General and the Manufacturing Ledger

The discussion of the Account Classification pointed out that the Manufacturing Ledger was a subsidiary Factory Cost Ledger controlled by an account of the same title in the General Ledger. All amounts charged to the Control Account must be absorbed into the inventory and credits to the control account will relieve the inventory. The Control Account may be affected by entries originating from the Cost Accounting Department as well as entries from all books of original entry, that is General Journal, Voucher Register, Sales Journal, etc.

In order that the cost accounts may be posted in accordance with the entries which have been made to the Control Account, vouchers are routed to the Cost Department after entry to the Voucher Register. While the larger percentage of all charges originate from the Voucher Register, Journal and Cash Book entries must also be entered in the Cost Records, this being accomplished by copies of the journal entries being forwarded to the Cost Department as they are prepared.